* 1. **Real Numbers and the Number Line**
* A number *a* is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a number *b* if $a^{2}=b$.
	+ What are some other examples?

|  |  |
| --- | --- |
| 1. \_\_\_\_\_\_
2. \_\_\_\_\_\_
 | 1. \_\_\_\_\_\_
2. \_\_\_\_\_\_
 |

* \_\_\_\_\_\_\_\_\_\_\_ the expression under the radical symbol.



* \_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_ = radical
* The square of an integer is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Ex. The perfect square of 7 is \_\_\_\_ because $7^{2}=\\_\\_\\_\\_$

* A set is a \_\_\_\_\_\_\_\_\_\_\_\_ collection of objects.

Ex.

|  |  |
| --- | --- |
| 1. {2, 4, 6, 8, 10,...}
2. {1, 3, 5, 7, 9, 11,...}
 | 1. { }
2. { }
 |

* A \_\_\_\_\_\_\_\_\_ of a set consists of elements from a given set.

Ex. { \_\_, \_\_, \_\_ } is the subset of { \_\_, \_\_, \_\_, \_\_, \_\_, \_\_}

* Each object in the set is called the \_\_\_\_\_\_\_\_ of the set.
* Whole numbers are also referred to as the \_\_\_\_\_\_\_\_\_ numbers.

Ex. {0, 1, 2, 3, 4, 5, 6, 7, 10,... }

Label the number line below with the whole numbers.

-4 -3 -2 -1 0 1 2 3 4 5 6

* Natural numbers are any positive \_\_\_\_\_\_\_\_\_ number.

Ex. {1, 2, 3, 4, 5, 6, 7,... }

 Circle the whole numbers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | -9 | $$\frac{10}{5}$$ | $$\sqrt{25}$$ | 0 | 1.333... | $$ \frac{2}{6}$$ | 150 |

* Integers are any \_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_ whole numbers.

A number is not an integer when \_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_.

Circle the integers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | -1.528 | $$\frac{6}{3}$$ | $$\sqrt{25}$$ | 0 | 1.333... | $$ \frac{102}{6}$$ | 10 |
|  |  |  |  |  |  |  |  |

* Rational numbers are numbers that can be written \_\_\_\_\_ \_\_ form.

where *a* and *b* are integers and *b* $\ne $0

A rational number is decimal form is either \_\_\_\_\_\_\_\_\_\_\_\_ decimal such as 5.45 or a \_\_\_\_\_\_\_\_\_\_\_ decimal such as 0.3333...

* Irrational Numbers \_\_\_\_\_\_\_\_\_ be represented as the quotient of two integers.

Ex. $\sqrt{3}, π, \sqrt{48} $

* \_\_\_\_\_\_\_ numbers are any numbers.

-5 -4.5 -4 -3 -2 $-\frac{3}{2}$ -1 0 -.25 1 2 2.333... 3 4 $\sqrt{4.5}$ 5

The Real Number System

* 1. **Real Numbers and the Number Line**
* A number *a* is a **square root** of a number *b* if $a^{2}=b$.
	+ What are some other examples?

|  |  |
| --- | --- |
| 1. **7 is the square root of 49**
2. **6 is the square root of 36**
 | 1. **8 is the square root of 64**
2. **10 is the square root if 100**
 |

* **Radicand** the expression under the radical symbol.



* **Radical Symbol**  + **Radicand** = radical
* The square of an integer is called a perfect square.

Ex. The perfect square of 7 is **49** because $7^{2}=49$

* A set is a **well defined**  collection of objects.

Ex.

|  |  |
| --- | --- |
| 1. {2, 4, 6, 8, 10,...}
2. {1, 3, 5, 7, 9, 11,...}
 | 1. {**5, 10, 15, 20, 25, ...**}
2. {**10, 20, 30, 40, 50, ...**}
 |

* A **subsets** of a set consists of elements from a given set.

Ex. { **2**, **4**, **6** } is the subset of {**1, 2, 3, 4, 5, 6, 7,...**}

* Each object in the set is called the **element** of the set.
* Whole numbers are also referred to as the **counting** numbers.

Ex. {0, 1, 2, 3, 4, 5, 6, 7, 10,... }

Label the number line below with the whole numbers.

-4 -3 -2 -1 0 1 2 3 4 5 6

* Natural numbers are any positive **whole** number.

Ex. {1, 2, 3, 4, 5, 6, 7,... }

 Circle the natural numbers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | -9 | $$\frac{10}{5}$$ | $$\sqrt{25}$$ | 0 | 1.333... | $$ \frac{2}{6}$$ | 150 |

* Integers are any **negative** or **positive** whole numbers.

A number is not an integer when it is in **decimal** or **fraction** form.

Circle the integers

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| -1 | -1.528 | $$\frac{6}{3}$$ | $$\sqrt{25}$$ | 0 | 1.333... | $$-\frac{12}{6}$$ | 10 |
|  |  |  |  |  |  |  |  |

* Rational numbers are numbers that can be written in **fraction** form.

**a**

where *a* and *b* are integers and *b* $\ne $0

**b**

A rational number is decimal form is either **terminating** decimal such as 5.45 or a **repeating** decimal such as 0.3333...

* Irrational Numbers **cannot** be represented as the quotient of two integers.

Ex. $\sqrt{3}, π, \sqrt{48} $

* **Real** numbers are any numbers.

-5 -4.5 -4 -3 -2 $-\frac{3}{2}$ -1 0 -.25 1 2 2.333... 3 4 $\sqrt{4.5}$ 5

The Real Number System

Rational

Irrational

Natural Numbers

Whole Numbers

Integers